/COMMENTARY

Is Public Opposition to Biotechnology Real?

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Biotechnologists have become "the focus of persistent public opposition, replacing nuclear power as the symbol of 'technology out of control'"

"While information technology is a symbol of progress, the icon of ingenuity and the test of American competitiveness, biotechnology is the focus of public opposition."

It's discomfiting to take serious issue with someone who is both a friend and a commentator with distinctive insight into the interfaces between science and society. But with respect, as they say, here goes. The comments above come from a talk given by New York University sociology professor Dorothy Nelkin at a conference on resistance to new technology held in London earlier this year. There is much in Dr. Nelkin's address, subsequently published in the *Times Higher Education Supplement* (23 July 1993), with which I empathize. But I also believe that on this occasion her analysis is seriously flawed.

The central question is this: where is the concrete evidence of public opposition to biotechnology? I have looked carefully for such evidence, and failed to find any. Consider, for example, the release of genetically engineered organisms into the environment—described last year in an editorial in the *Times Higher Education Supplement* (9 October 1992) as "almost purpose-designed to alarm the public." Even when gene splicing began, two decades ago, there was minimal concern among nonscientists over possible attendant dangers, in contrast to the worries expressed by researchers themselves, those ventilated by the media, and those fostered by lobby groups that sprang up to campaign on this new issue.

Recently, however, the nonscientific public has been expected to accept the proposition that these self-same microbes, and plants and animals, can be released from their laboratory confines without danger to anyone or anything. Try the following as just one scenario, and imagine that you are a nonscientist learning about this for the first time. You hear about a geneticist on the local campus who has developed an ingenious use for the venomous scorpion. He has located the gene coding for one of its toxins and spliced that bit of DNA into a baculovirus to increase its virulence. He now plans to produce a vast quantity of the deadly virus particles, take them one sunny day to a nearby forest glade, and disseminate them throughout the trees.

Less a little poetic license, this is precisely the strategy being developed by David Bishop of the Institute for Virology and Environmental Microbiology in Oxford. His aim is to enhance the virulence of a naturally occurring virus toward pests such as the pine beauty moth, which causes considerable damage every year in the pine forests of Scotland, by using an insect-specific scorpion toxin. There is no reason on earth to believe that this poses any dangers for humans, or animals, or indeed anything other than the target species. My point in citing the work is as one example of a line of research that might well have been expected to trigger considerable public disquiet.

Why has it not done so? A specific answer is that Bishop has been extraordinarily open in the way in which he has developed his viral insecticides, being willing to give generously of his time in explaining what he is doing, and why he believes it to be safe and potentially beneficial, to both individuals and groups, local and national. This has been a model exercise in the sensitive building of public trust.

But there is a general answer too, which brings us back to Dr. Nelkin's paper. This is that the majority of people are well aware of the value of scientific research as applied in health care, agriculture, and elsewhere. They know about Louis Pasteur, Joseph Lister, and Alexander Fleming. They donate money for medical and scientific causes, and they go on marches to demand greater support for causes such as AIDS research. This is why opinion surveys invariably reveal, alongside understandable concern about the implications of new and powerful technologies, a substantial bedrock of regard for the practical achievements of science. This is not naïve or gullible trust. It cannot be taken for granted, and it has to be cherished and sustained, but it is trust nevertheless.

What Dr. Nelkin is talking about is antagonism to biotechnology expressed by interest groups—for example, animal rights crusaders and small farm organizations. While some of these lobbies undoubtedly depend upon financial support from the public, it is surely a serious error to see their activities as confirming any general opposition to biotechnology. It's equally erroneous to argue, as I've heard in my own country, the U.K., that classroom attitudes toward science reflect a more widespread disenchantment. Young people are becoming cool toward science because they see poor career prospects there, not because they and their parents dislike science per se.

Take heart, readers. Real hatred of biotechnology is confined to small and unrepresentative groups. You can stop fretting about unpopularity and worse, as you walk down the street. But never forget that you need to work, hard and continuously, to build and retain public confidence. ///